

ATOMIC ENERGY

newsletter

THE FIRST AND ONLY ATOMIC NEWS SERVICE

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Dear Sir:

Now scheduled for the 1953 Conference on Nuclear Engineering (to be held at University of Calif., Berkeley campus, Sept. 9-11, 1953) are some 60 papers, from 24 organizations in the field. The 60 proposed papers, by and for workers in the atomic energy and closely related fields, include: 37 papers on "Reactors and Power Plants"; 3 papers on "Isotope Production and Separation"; 14 papers on "Isotope Handling and Utilization"; and 6 papers on "Accelerator Engineering"....In a similar field, Oak Ridge National Laboratory, Oak Ridge, is offering the fifth in its series of Summer symposia, August 24-29th. The symposium will be devoted to modern physics, after a 3-year pre-occupation with other fields.

In a significant application of radioisotopes, cortisone (compound E), and hydrocortisone (compound F), have been labeled with carbon-14 for the first time, by Charles E. Frosst & Co., Montreal, with the help of The Upjohn Co., Kalamazoo, Mich. The procedure used for the synthesis was that developed by Drs. T.F. Gallagher, T.H. Kritchevsky, and D.L. Garmaise, of the Sloan-Kettering Institute for Cancer Research, N.Y. The hormones will be made available free of charge to investigators. This availability of the long-lived radioactive cortisone is expected to make possible the detailed study of their mechanism in the treatment of arthritis, cancer, and other metabolic diseases. Requests for the radioactive hormones should be addressed to the Endocrinology Study Section, National Institute of Health, Bethesda 14, Md. (Other news of products in the nuclear field, page 3 of this LETTER.)

Two additional Government installations are now to be used as posting places for releasing information on highly radioactive surface localities that have been discovered by Government airborne detection instruments during aerial survey work. Starting August 15th, 1953, and on the 15th day of each following month, index maps will be posted simultaneously at the USAEC's ore buying stations at Monticello, Utah, and Ship Rock, New Mexico. This policy of publicly releasing such information was initiated July 13th, 1952, and since then the USAEC has made such postings throughout the country at such localities as New York raw materials office, USAEC, New York City; Denver Exploration Branch, USAEC, Denver Federal Center, Denver, Colo.; and at numerous other centers. (The full list of such posting centers may be obtained from the USAEC's New York Raw Materials Office, 60 Columbus Ave., New York, N.Y.) (Other news of raw materials for nuclear work, page 4 this LETTER.)

The first plant of its kind (other than research units) to utilize conventional biological methods of domestic sewage treatment for the concentration and removal of radioactivity found in waste liquids, now operating at the National Reactor Testing Station, Arco, Idaho, has been described in a report (IDO-24010) prepared by a sanitary engineer at the Station. (See page 4 this LETTER, for news of this report and other publications.) The report describes a conventional trickling filter sewage system which has been modified at the Station to handle, simultaneously, both domestic sewage, and radioactive laundry waste.

BUSINESS NEWS...in the nuclear energy field...

NEW SECURITIES ISSUE FILED ON PLANTS TO SUPPLY USAEC WITH POWER: The Ohio Valley Electric Corporation, Columbus, and its subsidiary, the Indiana-Kentucky Electric Corp., Indianapolis, asked permission in the last fortnight, of the Securities and Exchange Commission, to launch a \$420 million securities issue. These funds are to enable the two companies, created by a combination of Midwest and Eastern utility companies, to construct and operate two electric generating stations, with related facilities, to supply the electric energy requirements of the Portsmouth area gaseous diffusion plant, where uranium-235 is to be produced. The power stations will provide some 2 million kilowatts of electric power for the uranium-235 producer plant.

SURVEY OF ATOMIC POWER DEVELOPMENT TO BE MADE BY PUBLIC UTILITIES COMMISSIONERS: The atomic power development program will now be surveyed by a special committee from the National Association of Railroad and Utilities Commissioners. This committee, which consists of six members, and which is concerned with the development and use of atomic power in the electric industry, will be given access to classified power reactor technology. After a special study of the economic and legislative problems involved, the committee plans to report to the Association's convention next September. The NARUC Committee consists of R. E. Mittelstaedt, president, Calif. Public Utilities Commission; H. B. Strong, Connecticut Public Utilities Commission; H. M. Cary, Missouri Public Service Commission; J. H. McCarthy, Michigan Public Service Commission; G. P. Steinmetz, Chief Engineer, Wisconsin Public Service Commission; and C. W. Mors, General Div. Eng., California Public Utilities Commission.

OUTSIDE THE UNITED STATES...nuclear energy work...

FRANCE: The French Atomic Energy Commission plans to produce some 50 to 100 grams per day of plutonium in the Rhone Valley, B. Goldschmidt, director of chemistry for the French Commission, recently told the International Congress of Industrial Chemistry, meeting in Paris. The French group has been engaged for nearly a year on a five-year plan which, it is hoped, will enable it to produce sufficient plutonium to meet its expanding needs. Discussing raw material problems, Goldschmidt explained that Potasse et Engrais Chimiques, and other firms, have begun to study uranium recovery from the natural calcium phosphates of Morocco. (These phosphates contain uranium in concentration similar to that of the Florida phosphates, in the United States.) At present, he stated, French uranium production comes primarily from relatively rich ores in the Limoges region, and from concentrates obtained by flotation of lower grade ores from the Puy de Dome region. Ores are purified in a new plant operated by the Commission at Le Bouchet, near Paris. Solvent purification and precipitation of uranium peroxide have been operating since 1948 in an installation built by the Societe des Produits Chimiques de Terres Rares. Uranium production is accomplished by the calcium reduction of uranium tetrafluoride. Production of heavy water is still a Norwegian monopoly in Europe, Goldschmidt explained, but French industry is now beginning to study the processes involved, he said. At both the Chatillon and Saclay atomic piles, he observed, the uranium metal rods are aluminum canned. Since improved canning will allow heat to be extracted at higher temperatures, and energy to be recovered from the heat transfer fluids, use of zirconium or beryllium tubes is under consideration. The metallurgy and pure preparation of these two metals is being studied, he observed.

PEOPLE...in the nuclear energy program...

Joseph Campbell, of New York, was nominated last fortnight by President Eisenhower to serve as a member of the U. S. Atomic Energy Commission; Congressional approval was subsequently given to this nomination. Mr. Campbell will fill out until June 30, 1955 the unexpired term of T. Keith Glennan, who recently resigned.

Gordon Dean, former Chairman of the U. S. Atomic Energy Commission, has now joined Lehman Brothers, investment banking firm, New York City. Mr. Dean will serve in an executive capacity.

Ernest A. Wende, area manager of the USAEC's Paducah, Ky., area will become deputy manager of Oak Ridge Operations on September 1st, and Fred H. Belcher will become the Paducah area manager on that date.

NEW PRODUCTS, PROCESSES & SERVICES...in the nuclear field...

FROM THE MANUFACTURERS: New instrument to provide automatic monitoring of radiation, Model DZ-14 "Radiation Supervisor", can be used to operate, remotely, alarm systems at a distance from the area being monitored. Instrument has built-in aural and visual alarm systems, with adjustable sensitivity. Infinite life type counter plugs directly into the top of the chassis. An accessory cable and probe permit monitoring of working areas, floors, etc. Said to be engineered for continuous operation.-- Detectolab, Inc., 6544 Sheridan Rd., Chicago 26, Ill.

New coincidence-anticoincidence scaler, Model 400. Incorporates a four-channel coincidence circuit, with the fourth channel designed for either coincidence or inticoincidence counting. Input sensitivity said by manufacturer to be negative 1-volt with channel dead time less than 10-microseconds. Has scale of 64 with scale selections of 4, 8, 16, 32, or 64. The counter voltage is continuously variable from 500 to 2500-volts, with electronic regulation said to be 0.01% per 1% change in line voltage. A panel mounted Veeder-Root register is also provided.-- Radiation Instrument Development Laboratory, 2337 W. 67th St., Chicago 36, Ill.

New portable, directional, exposure shield for safe handling of strong sources of cobalt-60 for industrial radiography, model DES. Recommended for use with thick or thin sections--from 6-inches or more down to a fraction of an inch of steel, brass, bronze, etc. The equipment functions to shield all radiation from a gamma source, except a beam, which may be directed at only the area to be exposed. The cobalt-60 is moved into or out of position by rotating a handle through 190-degrees. When the source is retracted, the shield serves as storage container. The model DES shield is mounted on a portable casted lift truck, with either hand or electric power lifting. Units are 3½-ft. long, by 2½-ft. wide, and are 6-ft. or more high, with the height varying on different models. Source may be raised to 56-in., or lowered to 12-in., from the floor. The beam may be varied from straight up, to 45-deg. below the horizontal. --Technical Operations, Inc., 6 Schouler Ct., Arlington, Mass.

NOTES: Two new models of cold cathode glow transfer counting tubes have been added to the series of tubes which Atomic Instrument Co., Cambridge, Mass., distributes exclusively in the United States for Ericsson Telephones, Ltd. These tubes offer comparatively high speed and lack of moving mechanical parts. Model GC10M is a miniature, bi-directional, decade counting tube. It is designed for use in medium speed decimal counting apparatus such as scalars, computers, and dividers. Maximum input frequency is 600 pulses per second. The other of these two tubes is Model GC10B, also a cold cathode, bi-directional, decade counter tube. It operates at maximum input frequency of 4000 pulses per second. The count is determined by noting the position of the glow on one of the ten radially spaced cathodes which are around the axially positioned anode. These tubes are recommended for such applications as totalizers, batch counters, predetermined counters, or wherever their silent operation permits use in place of mechanical devices.

A series of two-week training programs in cobalt-60 radiography techniques will be offered early this Fall by Technical Operations, Inc., Arlington 74, Mass. The program will cover health physics, the handling of cobalt-60 and other gamma sources, and the practical and theoretical aspects of industrial radiography. Approximately half the course will be devoted to lectures, demonstrations, and question-and-answer periods; the rest will embrace actual practice, including experiments in shielding, radiation measurement, and the taking of radiographs. Applicants should have previous technical training and/or experience in some field related to foundry practice, steel fabrication, mechanical engineering, radiography, etc. The program has the supplemental purpose of providing the basis for approval by the USAEC of the purchasing of cobalt-60. Inquiries concerning enrollment should be made to Technical Operations, in Arlington.

A new technique for the stabilization of zirconium dioxide, a ceramic useful in nuclear reactors, which can withstand temperatures of over 4000-deg. F., has been developed under the auspices of the U. S. Air Force. The stabilization is accomplished at lower temperatures than employed previously by using special additives with the zirconium dioxide.

RAW MATERIALS...radioactive minerals for nuclear work...

UNITED STATES: Approval was given by the Senate in Washington last fortnight to a bill validating uranium claims filed on public lands that had been leased previously for oil and gas, in the period preceding March, 1953. The legislation, which was opposed by oil and gas people, was introduced by Senators Millikin and Johnson, of Colorado; lands concerned are in Colorado and other southwestern states. (The hearings, before a Senate minerals sub-committee, during which the bill was discussed, disclosed that Kerr-McGee & Co., in which U.S. Senator Kerr is a partner, oil operators, have increasingly of late turned to the uranium mining field. Kerr-McGee have utilized the services of Jenkins & Hand, Casper, Wyoming, engineering firm, and has spent some \$150,000 prospecting for uranium in the Powder River basin, which is part of Wyoming's oil area. Following their prospecting, they attempted to lease some 100,000 acres of this land in Wyoming. This would require special legislation, which the sub-committee was asked to consider since under present mining statutes, individual claims are strictly limited in acreage, with the requirement that \$100 worth of work must be done on each claim during the year, if the claim is to be retained. Permitting a lease of 100,000 acres would therefore enable Kerr-McGee to save some \$300,000 annually in assessment fees.)

Moab, Utah: More than 11,000 tons of uranium ore with a value of \$350,000 have been shipped from the Mi Vida mine of Utex Exploration since mid-December, 1952, according to Charles Steen, Utex chief geologist. While 50 tons per month was the rate in December, it has been pushed up to 4,000 tons per month at present, Mr. Steen stated. He said that drilling to date has blocked out an ore body 600-ft. square with an average thickness of 14-ft. Further exploration on the property has shown that 2,900-ft. southeast of this shaft there are 12-ft. of ore at a depth of 305-ft. Other drilling on the boundary between Utex and the adjoining Little Beaver Mining Co.'s property showed an ore body 35-ft. thick, with 16-ft. of ore.

CANADA: Uranium prospecting and staking of claims in Ontario has been at approximately the same level as last year, the half-yearly figures compiled by the Ontario mines department now reveal. For the first six months of this year, 9,255 claims were recorded, as against 1952's figure of 9,332. Largest increases in filed claims were at Parry Sound, and Eastern Ontario. While last years total for both areas was 368 claims, this year Parry Sound had 826 claims filed on it, and Eastern Ontario 1,618. Largest number of claims were filed in Sudbury: 2,583.

In Ontario's new potential uranium field, east of Sault Ste. Marie, where interest was originally generated by the uranium finds of Peach Uranium & Metal Mining, Ltd., claim staking has been proceeding rapidly. Estimates place the total number of claims at approximately 2,500, at this date. Since its initial work, Peach Uranium has turned over to Pronto Uranium Mines 68 claims; now, exploration on this ground has been resumed by Pronto. Peach had previously explored a rectangular area 400-ft. wide, and 4,460-ft. in length. The weighted average of all intersections from all holes ran 0.12% uranium oxide, it was reported; this is a gross value of \$17.40 per ton over an average width of 8.8-ft. The uranium is contained in both the minerals brannerite and pitchblende.

BOOKS & OTHER PUBLICATIONS...in the nuclear field...

A Correction: This NEWSLETTER stated (V.9, No. 1) that recommendations for the safe installation of particle accelerators were drawn up by Factory Insurance Association, Hartford. This was not correct. The booklet "Fire Protection for Particle Accelerator Installations", was prepared by the technical sub-committee of the joint fire and marine insurance committee on radiation, composed of practically all segments of the insurance industry.

Radioactive Waste Removal in a Trickling Filter Sewage Plant, by A.L. Biladeau, sanitary engineer. Domestic sewage treatment for removing radioactivity. Report No. IDO-24010.--Office of Technical Services, Washington, D. C.

Bibliography on Fission, Supplement I. Covers references up to September, 1952. Issued by British Atomic Energy Research Establishment... 9 pages.-- British Information services, New York 20, N.Y. (45¢)

ATOMIC PATENT DIGEST...latest U. S. grants in the nuclear field...

Voltage supply regulator, for direct current. Comprises (in part) a source of D. C. potential, a supply line fed by the source, a series regulating tube coupled into a conductor of the line, a voltage divider bridged across the line beyond the regulating tube, and a circuit for coupling an error signal from the voltage divider to the regulating tube. U. S. Pat. No. 2,643,360 issued June 23rd, 1953; assigned to United States of America (USAEC). (Inventor: Edward Fairstein.)

Method of neutron borehole logging. Comprises (in part) passing through the hole a source of radiation from which neutrons and gamma rays are emitted, with some of the neutrons penetrating the formations surrounding the hole. Due to nuclear collision with the atoms of the formations, gamma rays are induced, and some of the induced gamma rays enter the hole while simultaneously gamma rays from the source are scattered within the formations and returned to the hole. This impresses an electrical potential on a single ionizable medium of relatively low density and exposes the medium to induced gamma rays and to scattered gamma rays intercepting the hole, whereby electrical pulses are created in the ionizable medium. U. S. Pat. No. 2,644,891 issued July 7th, 1953; assigned to The Texas Co., New York, N. Y. (Inventor: Gerhard Herzog.)

Surge suppressor. Comprises (in part) a tubular body of circular configuration, this body being of non-conducting material, with hydrogen gas being maintained in it at less than atmospheric pressure. Means are provided for partially ionizing this gas, and a conductor disposed within the body and spaced from it provides that surges above a predetermined magnitude in the conductor increase ionization of the gaseous medium and suppress these surges. U. S. Pat. No. 2,644,913 issued July 7th, 1953; assigned to United States of America (USAEC). (Inventor: Wallace G. Stone.)

Magnetic flux direction determining apparatus. Comprises (in part) apparatus disposed in a varying magnetic field and comprising a flat coil having a much larger diameter than axial length and pivotally mounted at the circumference to hang vertically, with means for varying the center of gravity of this coil to vary its vertical position. Mechanical damping means are attached to this coil, with voltage indicating means connected across the coil for indicating the voltage induced in it. U. S. Pat. No. 2,644,922 issued July 7th, 1953; assigned to United States of America (USAEC). (Inventor: Duane C. Sewell.)

Radioactive lightning protector with accelerating elements. Comprises (in part) a lightning rod with an electrically conductive collector mounted at one end of it and forming an electrostatic field extending toward the top of the rod. Ion emissive means mounted on the rod are insulated from it, so the ions emitted are impelled by the electrostatic field in the direction of and beyond the top of the lightning rod, extending its effective length. U. S. Pat. No. 2,644,026 issued June 30th, 1953; assigned to Ste. Helita, Paris, France. (Inventors: Joseph Pierre Grenier and Pierre Edouard Eugene Lescieux, Paris, France.)

Process for the separation of isotopic ions. Method of treating an aqueous solution of potassium sulfate containing K-39 and K-41 ions in order to obtain a product beneficiated with respect to K-39 ions. U. S. Pat. No. 2,645,610 issued July 14th, 1953; assigned to United States of America (USAEC). (Inventors: Samuel Leo Madorsky, and Aubrey Keith Brewer.)

Airborne device for sampling the gaseous and solid content of a radioactive cloud. Comprises (in part) the combination of an air-tight bag located within an aircraft, and an elongated tube extending from this aircraft into undisturbed atmosphere in front of it, with the inboard end of the tube attached to the bag. A tapered nozzle is on the outboard end of the tube. U. S. Pat. No. 2,645,940 issued July 21st, 1953; assigned to United States of America (USAEC). (Inventors: Jerome Kohl, Elliott G. Reid, and Lloyd R. Zumwalt.)

Sincerely,

The Staff,
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